Utilization of a Tobacco Quit Line Prior to and After a Tobacco Tax Increase

Todd S. Harwell, Linda Lee, Cynthia Haugland, Steve M. Wilson, Stacy L. Campbell, Greg S. Holzman, Dorothy Gohdes, and Steven D. Helgerson

Objective: To evaluate the utilization of a tobacco quit line prior to and after an increase in tobacco taxes. **Methods:** Intake data were utilized to assess the number of callers to the quit line between May 2004 and April 2006. The characteristics of callers were also compared over three time periods; the 5 months prior to a voter initiative to increase the tax (May–September 2004), the 3 months just prior to the tax increase (October–December 2004), and the 5 months after the tax became effective (January–May 2005). **Results:** The mean number of intake calls to the quit line between May 2004 and April 2006 was 388 per month (range = 200–1 088). The number of calls per month increased just prior to and just after the tax increase (3-month moving average = 691–731 calls). Persons completing an intake between October to December 2004 and January to May 2005 were more likely to be younger than 45 years, woman, White, smoke one or more packs of cigarettes per day, and were less likely to have tried to quit using tobacco in the past year than did persons calling between May and September 2004. **Conclusions:** Organizations supporting quit lines should anticipate an increase in the utilization of these services and changes in the characteristics of callers prior to and following an increase in tobacco taxes.

KEY WORDS: **smoking, smoking/economics, spit tobacco, taxes/legislation and jurisprudence, tobacco use cessation, utilization**

Many states are using multiple strategies to prevent tobacco use and promote cessation. Increasing the unit price of tobacco products is one effective strategy to reduce tobacco use prevalence in youth and adults, and for increasing tobacco cessation.[1] Tobacco quit lines that incorporate counseling have also been shown to be an effective strategy to promote cessation.[2,3] Recent studies have demonstrated the positive impact of smoke-free laws, mass media, and the distribution of free nicotine replacement therapy (NRT) in conjunction with the utilization of quit line services.[4–6] Few studies, however, have evaluated if there is a change in the utilization and characteristics of quit line callers as a result of tobacco tax increases. This report evaluates the utilization and characteristics of tobacco users enrolling in the Montana Tobacco Quit Line prior to and after the

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Corresponding Author: Todd S. Harwell, MPH, Montana Department of Public Health and Human Services, Cogswell Bldg, C-314, PO Box 202951, Helena, MT 59620 (tharwell@mt.gov).

Todd S. Harwell, MPH, is Chief, Chronic Disease Prevention and Health Promotion Bureau, Montana Department of Public Health and Human Services, Helena, Montana.

Linda Lee, BA, is Section Manager, Montana Tobacco Use Prevention Program, Montana Department of Public Health and Human Services, Helena, Montana.

Cynthia Haugland, BS, is Quit Line Client Manager, National Jewish Medical and Research Center, Denver, Colorado.

Steve M. Wilson, MA, is Quit Line Biostatistician, National Jewish Medical and Research Center, Denver, Colorado.

Stacy L. Campbell, MA, is Program Manager, Montana Tobacco Use Prevention Program, Montana Department of Public Health and Human Services, Helena, Montana.

Greg S. Holzman, MD, MPH, is Consultant, Montana Department of Public Health and Human Services, Helena, Montana.

Dorothy Gohdes, MD, is Consultant, Montana Department of Public Health and Human Services, Helena, Montana.

Steven D. Helgerson, MD, MPH, is State Medical Officer, Montana Department of Public Health and Human Services, Helena, Montana.

implementation of a tax increase on tobacco products in the state of Montana.

Methods

The Montana Department of Public Health and Human Services in collaboration with the National Jewish Medical and Research Center provides telephone-based cessation services for Montana residents. Services through the quit line were initiated in May 2004. Callers to the quit line can utilize a number of services depending on their needs. Three options include free self-help cessation education materials, one-time cessation information session, including self-help educational materials from a trained counselor with a brief motivational intervention component, or callers can enroll in a proactive cessation-counseling program, which includes up to five sessions and provides coaching with problem-solving and skill-building techniques as well as the provision of NRT. The quit line services can be accessed by directly contacting the program using a toll-free telephone number. Physicians and other healthcare professionals can also refer patients, with their consent, by faxing a referral form to the quit line. A quit line counselor then contacts the referred patient to initiate the counseling program. Persons who enroll in the quit line phone-counseling program and are aged 18 years or older are eligible to receive free NRT via mail from the program. Six weeks of free NRT were provided to enrollees from May 2004 through March 2005. Because of budget constraints, only 2 weeks of NRT were provided from March 2005 through April 2006.

Upon an initial call to the quit line, staff conduct a brief intake interview and collect demographic information, history of tobacco use, readiness to quit using tobacco, reasons for wanting to quit, history of previous cessation attempts, and their history of selected chronic diseases. Demographic information is collected only for those callers who are not tobacco users (eg, family member or friend).

The Montana Department of Public Health and Human Services marketed the quit line through paid television, radio, outdoor billboards, theater, and newsprint advertising during the following time periods: May through August 2004, November 2004 through February 2005, and November 2005 through April 2006. Because of budgetary constraints, no paid media was utilized between March and October 2005. The Montana Department of Public Health and Human Services also promoted the service through the circulation of brochures, posters, prescription pads, and refrigerator magnets that were distributed to healthcare professionals statewide.

In 2004, a voter initiative was placed on the Montana State ballot to increase the tax on tobacco products effective from January 1, 2005. The initiative passed by a 66 percent to 34 percent margin on November 2, 2004. The initiative increased the cigarette tax by $1.00 per pack to a total per pack tax of $1.70, and increased the tax on chewing tobacco from $0.35 to $0.85 per oz. The initiative also increased the tax on other tobacco products from 25 percent to 50 percent of the wholesale price.

To evaluate the impact of the tobacco tax increase on the utilization of the quit line, we compared the number of monthly callers and the 3-month moving average of persons calling the quit line between May 2004 and April 2006. We also compared the characteristics of callers completing an intake interview during the 5 months prior to the tax initiative (May–September 2004), the 3 months prior to implementation of the tax (October–December 2004), and the 5 months after the tax increase (January–May 2005). Pearson χ^2 tests were used for these comparisons and a $P \leq .05$ was considered statistically significant.

Results

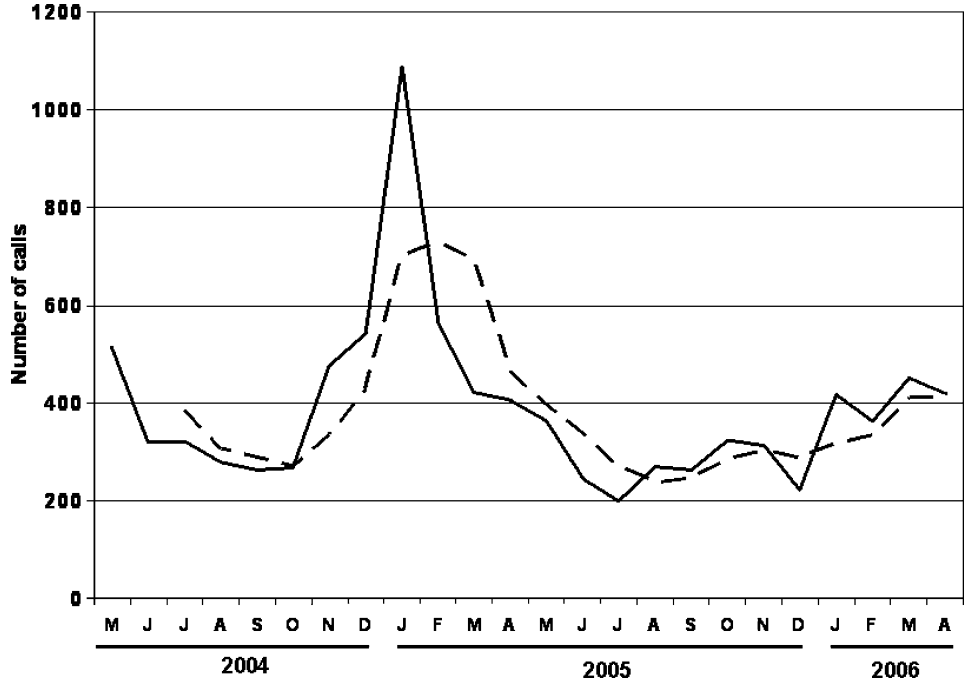
The mean number of intake calls per month to the quit line between May 2004 and April 2006 was 388 (range = 200–1 088) (Figure 1). The average number of monthly intake calls more than doubled from 288 between July and September 2004 to 731 (3-month moving average) between December 2004 and February 2005, and then decreased to 238 calls from June to August 2005. Between December 2005 and February 2006, when there was no tax increase, the average number of monthly calls was 334.

Callers completing an intake interview between October to December 2004 and January to May 2005 were more likely to be younger, woman, White, smoke one or more packs of cigarettes per day, and were less likely to have tried to quit using tobacco in the past year than did persons calling between May and September 2004 (Tables 1 and 2). There were no statistically significant differences in the health insurance status or a history of chronic conditions (asthma, respiratory tract disease, hypertension, or heart disease) among callers completing an intake interview between October to December 2004 and January to May 2005 in comparison with persons calling between May and September 2004 (data not shown).

Discussion

Overall, our findings suggest that a substantial increase in tobacco taxes will generate a considerable short-term increase in the utilization of a tobacco quit line. In

FIGURE 1 ● Monthly number of intake calls to the Montana Tobacco Quit Line, May 2004 through April 2006. Solid line indicates number of intake calls; dotted line, 3-month moving average of intake calls.



addition, the characteristics of callers prior to and after the tax increase changed to include a larger proportion of younger callers, women, Whites, heavier tobacco users, and persons who were less likely to have tried to quit using tobacco in the past year.

We were unable to identify other studies assessing the impact of tobacco tax increases on quit line utilization. However, a recent study from New Zealand found that utilization of the New Zealand quit line increased after the implementation of a national

TABLE 1 ● Characteristics of persons utilizing the Montana Quit Line, May 2004 through May 2005[a]

	Time period		
	May–September 2004 ($N = 1\,698$)	October–December 2004 ($N = 1\,285$)	January–May 2005 ($N = 2\,845$)
Age, y			
<44	46 (782)	51 (656)[b]	49 (1 397)[c]
45–64	45 (770)	42 (538)	44 (1 260)
65+	9 (146)	7 (91)	7 (188)
Sex			
Male	41 (690)	35 (445)	38 (1 070)
Female	59 (1 008)	65 (840)[b]	62 (1 775)[c]
Education level, y			
<12	13 (216)	13 (162)	14 (394)
12+	80 (1 363)	81 (1 038)	78 (2 226)
Unknown	7 (119)	7 (85)	8 (225)
Race/ethnicity			
American Indian	6 (106)	4 (56)	4 (108)
White	83 (1 414)	86 (1 108)[b]	85 (2 407)[c]
Other/unknown	11 (178)	9 (121)	12 (330)

[a] Values given are percentage (number).
[b] $P \leq .05$ for comparisons between May to September 2004 and October to December 2004.
[c] $P \leq .05$ for comparisons between May to September 2004 and January to May 2005.

TABLE 2 ● Tobacco use history among persons utilizing the Montana Quit Line, May 2004 through May 2005[a]

	Time period		
	May–September 2004 ($N = 1\,698$)	October–December 2004 ($N = 1\,285$)	January–May 2005 ($N = 2\,845$)
Years of tobacco use			
<5	4 (76)	4 (52)	3 (97)
6–10	6 (108)	6 (76)	7 (205)
10+	81 (1 374)	82 (1 056)	79 (2 235)
Unknown	8 (140)	8 (101)	11 (308)
Average number of cigarettes smoked per day			
<1 pack	23 (397)	21 (266)	22 (633)
≥1 packs per day	62 (1 046)	70 (890)[b]	66 (1 882)[c]
Unknown	15 (255)	10 (129)	12 (330)
Tried to quit smoking or using chewing tobacco in the past 12 mo			
Yes	51 (858)	44 (570)[b]	44 (1 255)[c]
No	41 (704)	48 (617)	47 (1 341)
Unknown	8 (136)	8 (98)	9 (249)

[a] Values given are percentage (number).
[b] $P \leq .05$ for comparisons between May to September 2004 and October to December 2004.
[c] $P \leq .05$ for comparisons between May to September 2004 and January to May 2005.

law prohibiting smoking in bars, restaurants, and most indoor workplaces.[6] A study in New York City found that a state tax increase on tobacco products and a smoke-free workplace law enacted in the city was associated with increased smoking cessation attempts.[7]

There are a number of limitations to our analyses. First, we conducted a time series evaluation and no data from other regions without a tax increase were available for comparison. Second, it is possible that marketing may have been associated with the large increase in the utilization of the quit line. Previous studies have shown that marketing of tobacco quit lines does increase utilization.[8,9] Paid mass media was utilized to promote the Montana Quit Line both in November 2004 through February 2005 and in November 2005 through February 2006. The number of average intake calls during these time periods was 668 and 329, respectively, suggesting that the tax increase was associated with the higher levels of utilization of the quit line. Third, tobacco users may have been more likely to attempt to quit and potentially call the quit line just prior to the New Year.[8] However, as previously described, the mean monthly number of callers between November 2004 and February 2005 in comparison with the same time period in 2005 and 2006 was two-fold higher. Thus, the "new year resolution" effect is not likely to explain the large increase in calls to the quit line observed in November 2004 to February 2005. Finally, we were unable to exclude nontobacco users (eg, family, friends, persons who had already quit, or persons not indicating their status) from our analyses. This led to a larger percentage of missing data for selected variables (eg, current tobacco use per day), which may bias the results. However, only a relatively small number of callers (6%) were not current tobacco users.

In summary, our findings suggest that there are important considerations for coordinating tobacco cessation strategies at the time of a tobacco tax increase. First, states and other healthcare organizations that support telephone quit lines can anticipate a considerable short-term increase in the utilization of quit line services prior to and after increases in tobacco taxes. Planning prior to the effective date of a tobacco tax increase will be important to ensure that funding and quit line counseling staff are available to support the short-term increase in utilization. Second, persons seeking cessation support through a quit line in response to tax increases on tobacco products may be heavy smokers and have had less experience trying to quit. Therefore, the counseling services and pharmacotherapy provided through quit lines will need to be tailored for these persons.

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